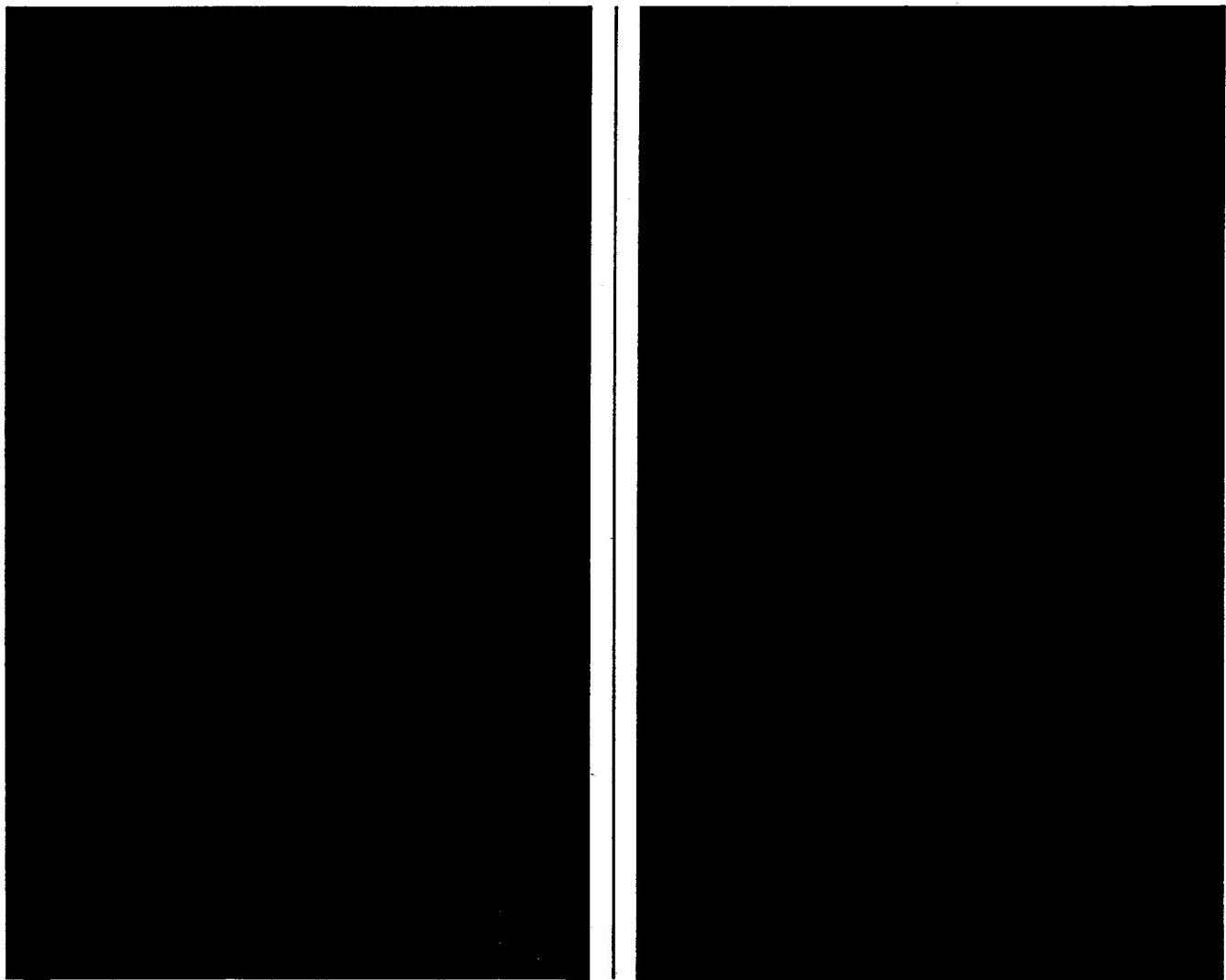


**Service Manual
Integrated Stereo Amplifiers**

430A/410A



SCOTT®
The Name to listen to.

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CAUTION NOTICE

The following safety precautions must be followed to assure continued reliability and safety against fire and shock hazard:

1. Replacement parts used during servicing of this appliance must have identical characteristics as those offered and recommended by H. H. Scott, Inc.
2. A dielectric test is to be performed on each appliance following the re-assembly and before returning the unit to the customer.
3. The dielectric test to be performed on H. H. Scott, Inc. electric components serviced in the United States and Canada for use in these countries shall consist of not less than the following:
 - 1) A dielectric tester designed to supply not less than 1100 volts at 60Hz and employing leakage current indicator(s), is to be used.
 - 2) The tester is to be connected per the instructions enclosed with the instrument, or as follows:
 - a. The tester is connected to the power line receptacle and the power switch is turned on.
 - b. Sufficient time is allowed for the tester supply to stabilize and then the output voltage is adjusted for 1080V.
 - c. Leads of the tester, usually marked GND and HV, are connected between chassis ground and both blades of the male plug of the power cord.
 - d. Switch tester to "test" and observe leakage indicator.
Leakage current must not exceed 0.5mA.

- * Dielectric tests made by service personnel in countries other than USA and Canada must use test equipment and procedures specified by the safety agency serving that country.

SPECIFICATIONS 430A (410A)

Minimum Continuous RMS Output Power per channel, both channels driven into 8 Ohms from 20 Hz – 20 kHz with no more than rated THD

45 watts (30 watts)

Total Harmonic Distortion [78 IHF rated, at 20 Hz – 20 kHz]
0.08% (0.1%)

Intermodulation Distortion [at rated output, 60:7000Hz; 4:1]
0.08% (0.1%)

Frequency Response [at 1 watt output, ±1dB]

20 Hz to 20 kHz

Power Bandwidth [at -3dB]

10 Hz to 30 kHz (15 Hz to 30 kHz)

Damping Factor [at 1 kHz, for 8 Ohm load]
> 40

Input Sensitivity [for rated output]

Phono: 2.5mV

Aux, Tuner: 150mV

Tape 1 and 2: 150mV

Tape 2 DIN Input: 150mV

Maximum Input Voltage

Phono: 150mV

Aux, Tuner: 10V

Tape 1 and 2: 10V

Tape 2 DIN Input: 10V

Signal-to-Noise Ratio [shorted input, IHF A network]

Phono, Ref. 10mV: 85dB

Aux, Tuner: 90dB

Tape 1 and 2: 90dB

Tape 2 DIN input: 90dB

Tone Control Range

Bass (100 Hz): ±10dB

Treble (10 kHz): ±10dB

Loudness Contour [Volume Control set to -30dB]

100 Hz: +7dB

10 kHz: +3.5dB

Crosstalk

1kHz: 75dB

Channel Balance [maximum Volume Control]

0.5dB (0.7dB)

RIAA Tolerance [78 RIAA rated, 20 Hz to 20 kHz]
±0.7dB

Channel Separation [78 IHF rated]

Phono (1 kHz): 60dB (55dB)

Aux, Tuner, Accessory Input, Tape 1 and 2,
Tape 2 DIN Input (1 kHz): 60dB

Tape Recording Output Level [at rated input sensitivity level]

Tape 1 Rec: 150mV

Tape 2 Rec: 150mV

Tape 2 DIN Output: 30mV

AC Power Requirement*

220V 50Hz

Power Consumption

370W (250W)

Dimensions

17-3/4" W, 5-1/4" H, 11-3/4"D (17-3/4", 5-1/4", 8-1/2")

430W, 132H, 300D (430, 132, 217) mm

Net Weight

18.9 lbs (15.5 lbs)

8.5 kg (7.0 kgs)

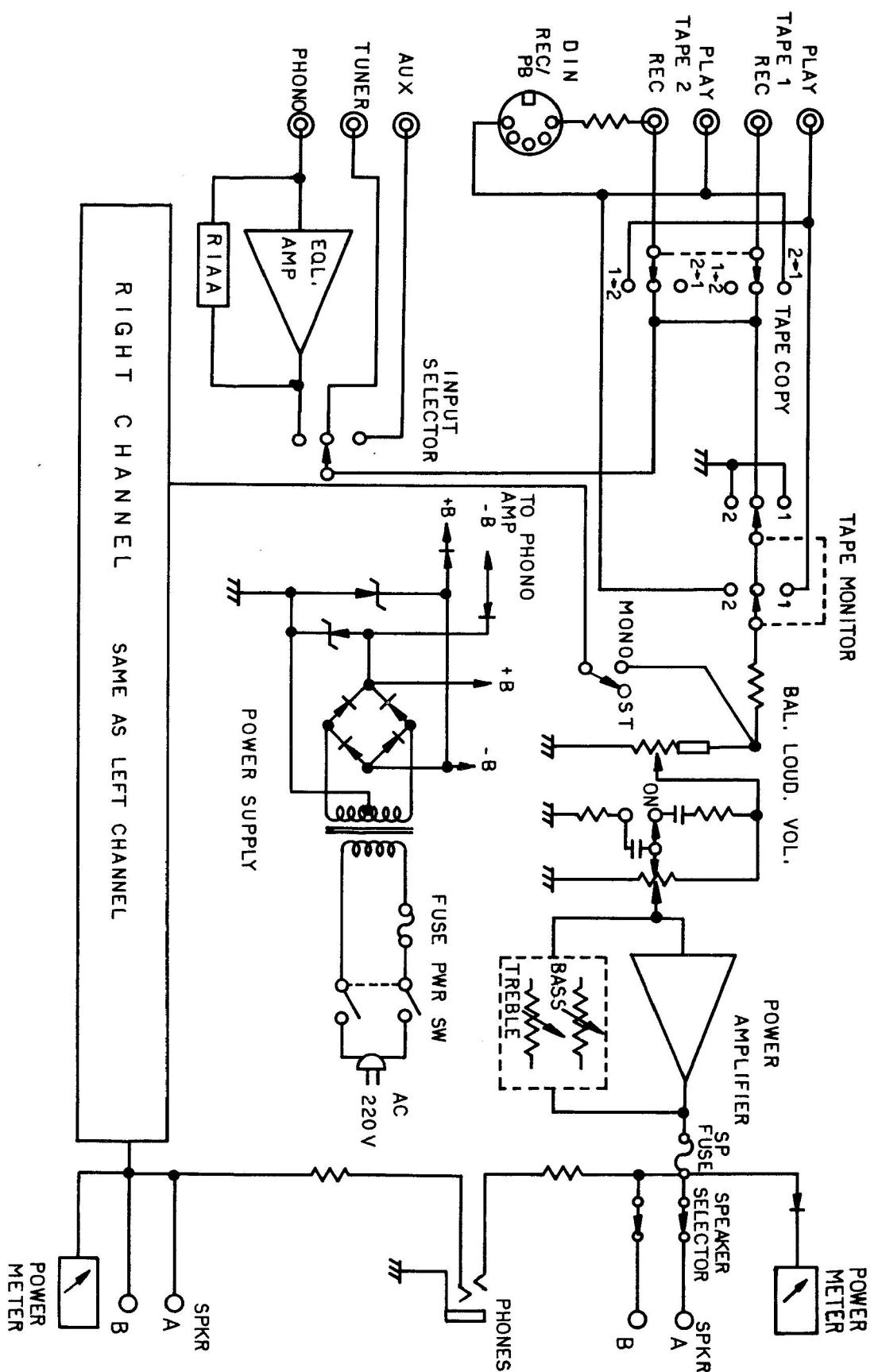
*** AC Power:**

Units for Great Britain: 240V, 50Hz

Units for USA and Canada: 120V, 60Hz

Class 2, double isolation system employed

BLOCK DIAGRAM

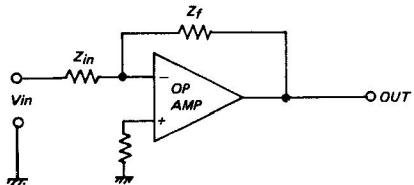


CIRCUIT DESCRIPTION

Design Philosophy on 430A and 410A

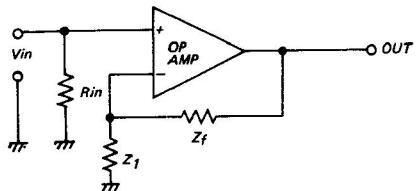
When using a high gain wide band open loop operational amplifiers, it is possible to design a passive network providing a negative feedback to control the amplifier gain and frequency response. In fact it makes easy the reproduction and repetititvity of the wanted results.

We can define the gain of such an amplifier as follows.



$$1) \quad V_o = -V_{in} \cdot \frac{Z_f}{Z_{in}} \quad (\text{Inverting Amp.})$$

$$2) \quad R_{in} = Z_{in}$$



$$3) \quad V_o = V_{in} \cdot 1 + \frac{Z_f}{Z_1} \quad (\text{Non Inverting})$$

$$Z_{inc} \cong R_{in} // \frac{Z_{in} \cdot G_{openloop}}{G_{closedloop}}$$

Where R_{in} is the input load resistor. Z_{in} is the open loop input impedance multiplied by open loop gain divided by closed loop gain.

Example: If open loop gain is 10,000 (i.e. 80dB) and the closed loop gain is 100 (i.e. 40dB). For an amplifier having $Z_{in} = 10K$ ohm, the equivalent $Z_{inc} = R_{in} // 1000K$ ohm.

Phono Equalizer: The phono non inverting amplifier equalizer consists of an operational amplifier with a feedback network to fullfil the RIAA equalizing requirements.

$$Z_f = R_8 // X_{c6} + R_{10} // X_{c8}$$

$$Z_1 = R_{12} + X_{c12}$$

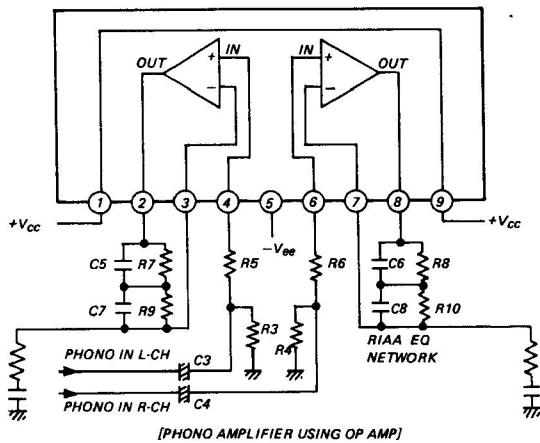
$$\text{where } X_c = \frac{1}{2\pi f \cdot c} = \frac{1}{6.28 f \cdot c}$$

f = frequency

c = capacitance in Farads

R = Resistance in Ohms

The above network provides a gain of 60 at 1kHz and a gain variation as function to the value of Z_f and Z_1 at any given frequency. For example at 100Hz the gain is 265 or +12.9dB referred to 1kHz gain, at 10kHz gain is about 13 or -13.7dB referred to 1kHz gain.



Premain Amplifier

The premain amplifier is an operational amplifier built by discrete components. It is directly coupled to the load (i.e speakers). The high gain open loop is provided by the dual differential amplifiers and the bootstrap capacitor. The complementary output drivers/buffers provide a symmetrical output drive.

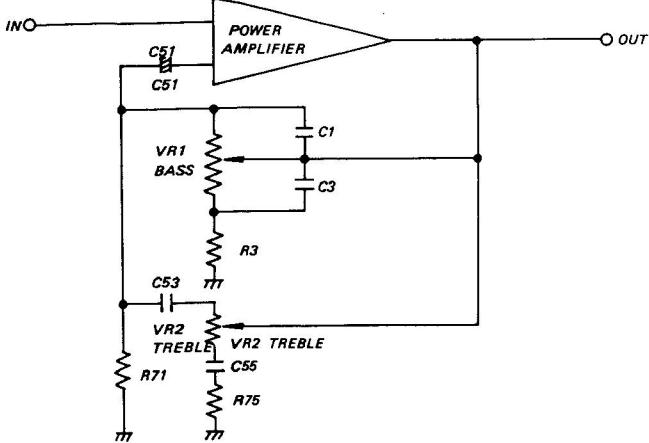
The amplifier is controlled by multiple feedback networks: DC feedback ($R_{93} + R_{95}$) on one channel ($R_{94} + R_{96}$) on the other are directly coupled between output and negative input. The effect of the DC feedback is for longterm stability and unity DC gain. The effect of this feedback is minor at frequencies over 5Hz. The multipole AC feedback network (with the bass and treble potentiometers incorporated) provides a constant gain with no effective gain variations of tone potentiometers. At 100Hz the bass potentiometer allows gain control of ±10dB. At 10,000Hz the treble potentiometer allows gain control of ±10dB. The amplifier has a current limit network that limits excessive current loading. A fuse is provided to prevent damage to speakers if the amplifier fails.

Tone Control

The tone control is a negative feedback type which uses the power amplifier stage as the active element. That is, the gain of the power amplifier stage is controlled by the tone controls circuitry. At 1kHz, the position of the tone controls has little effect on the gain, as C_{53} impedance is high, removing VR2 from the circuit, and C_1, C_3 impedance is low, effectively short circuiting VR1.

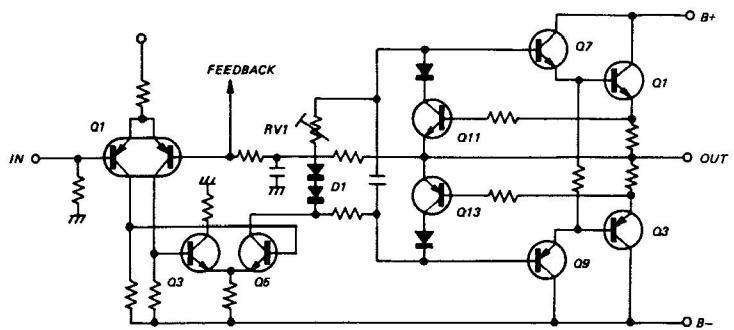
Bass Control: As the frequency decreases below 1kHz, the impedance of C_1 and C_3 increases proportionately. Thus at very low frequencies, the gain is mainly determined by the position of the bass control VR1. Rotating VR1 toward R3 will boost the low frequencies, while turning it towards C4 will cut the bass.

Treble Control: At high frequencies, as at 1kHz, VR1 is effectively short circuited. At these frequencies, however C_{53} and C_{55} impedance decreases, so that VR2 becomes the main control of the amplifier gain. Rotating VR2 towards C53 cuts the treble response.



Power Amplifier

This circuit is an OCL, pure complementary amplifier. The input stage consists of two differential amplifiers (Q1 and Q3/Q5). The first differential amplifier (Q1) is a matched transistor pair in one package providing excellent common mode rejection and low DC offset. Q5 acts as the voltage amplifier providing voltage swing to nearly full plus and minus supply. Current gain is then provided by the fully complementary Darlington pairs of Q7 and Q1 (Power transistor) for the positive swing, Q9 and Q3 (Power transistor) for the negative swing. The output stage bias is set by the double diode D1 and RV1. As previously described, amplifier gain is set by tone control circuitry. The driver and output stage is protected from short circuit and overload by transistors Q11 and Q13, which short out the driving signal when current through the output transistor reaches an excessive level.



Power Supply

The main power supply consists of a full wave bridge rectifier and two $6800\mu F$ capacitors. The B+ and B- regulators (zeners, D31 & D32) supply stabilized voltage for the low level circuitry.

Unwanted transients are eliminated by circuitry consisting of Q16 which performs a muting function when the unit is switched ON or OFF.

The base bias of Q16 is given by two different circuits; one normal positive line voltage circuit having a large time constant, and another negative supply voltage circuit having a small time constant ($C63/R84$). At turn on, the negative voltage is immediately supplied to the base of Q16 because of its smaller time constant, and this makes Q16 cut off. Then C61 is gradually charged up by the normal positive power line voltage and when the charged level is reached to a proper level, the power line switching transistor Q15 is turned on and supplies the power to the differential amplifiers. At turn off, the negative base supply voltage to the Q16 is immediately decreased to zero because of its small time constant, then the base bias is supplied from the positive power line voltage only, and Q16 is turned on immediately, resulting in shorting the Q15 base to the ground and eliminating the supply for the differential amplifiers, stopping amplifier operation immediately.

ADJUSTMENT

Equipment Required

Audio signal generator

DC voltmeter

Speaker load resistors, 8 Ohms, 100W

Digital voltmeter

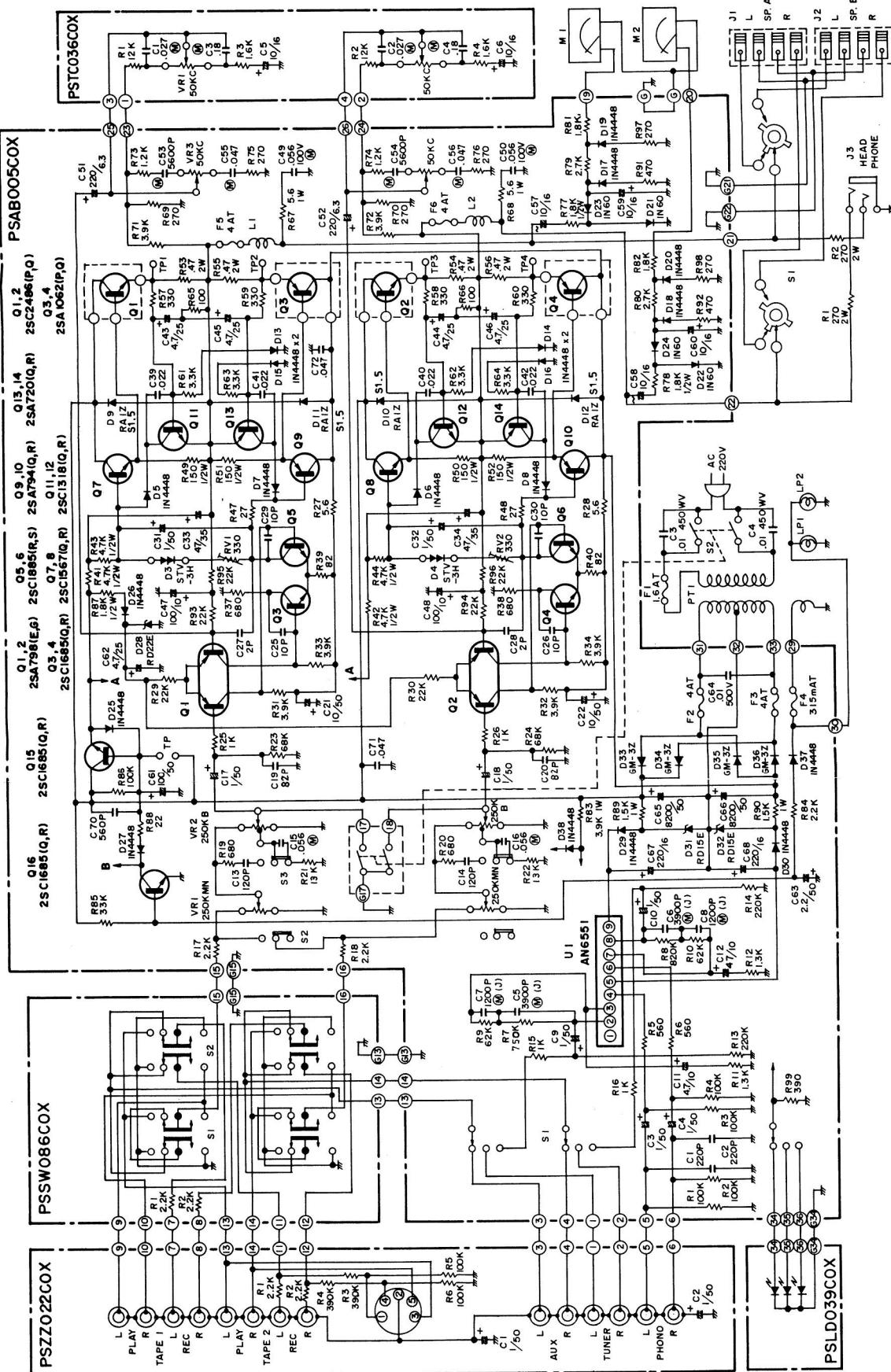
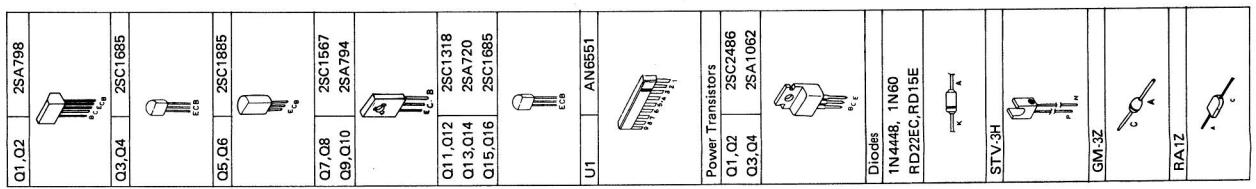
The following adjustments are the same for both left and right channels.

Bias Adjustment

- 1) Connect 8 Ohm resistors to the speaker "A" terminals, and set the Speaker Mode switch to "A" position.
- 2) Turn the Volume control fully counter-clockwise.

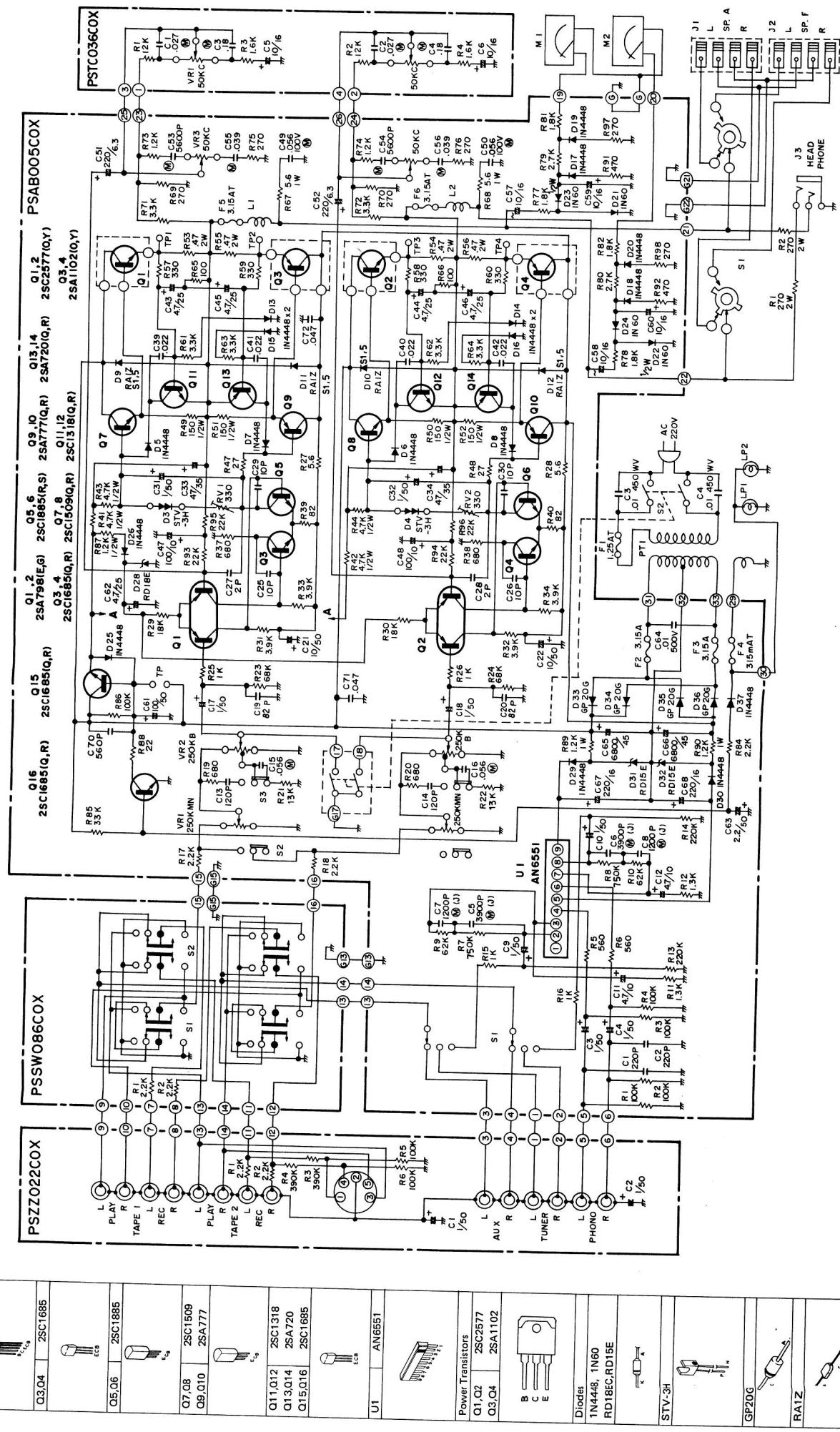
- 3) Turn RV1 fully counter-clockwise.
- 4) Set digital voltmeter to most sensitive voltage range. Connect probes across TP1 and TP2 (Voltmeter bias test point, L channel). Turn unit on. Let it idle for 10 seconds. Adjust RV1 for 40mV across the resistors.
- 5) Perform the same procedure for the right channel, except measure voltage across TP 3 and TP4 (Voltmeter bias test point, R channel). Adjustment is made with RV2.
- 6) Leave the amplifier on for about 30 minutes, then recheck measurement. A tolerance of $\pm 25\%$ is acceptable. Readjust if necessary.

SCHEMATIC DIAGRAM: 430A



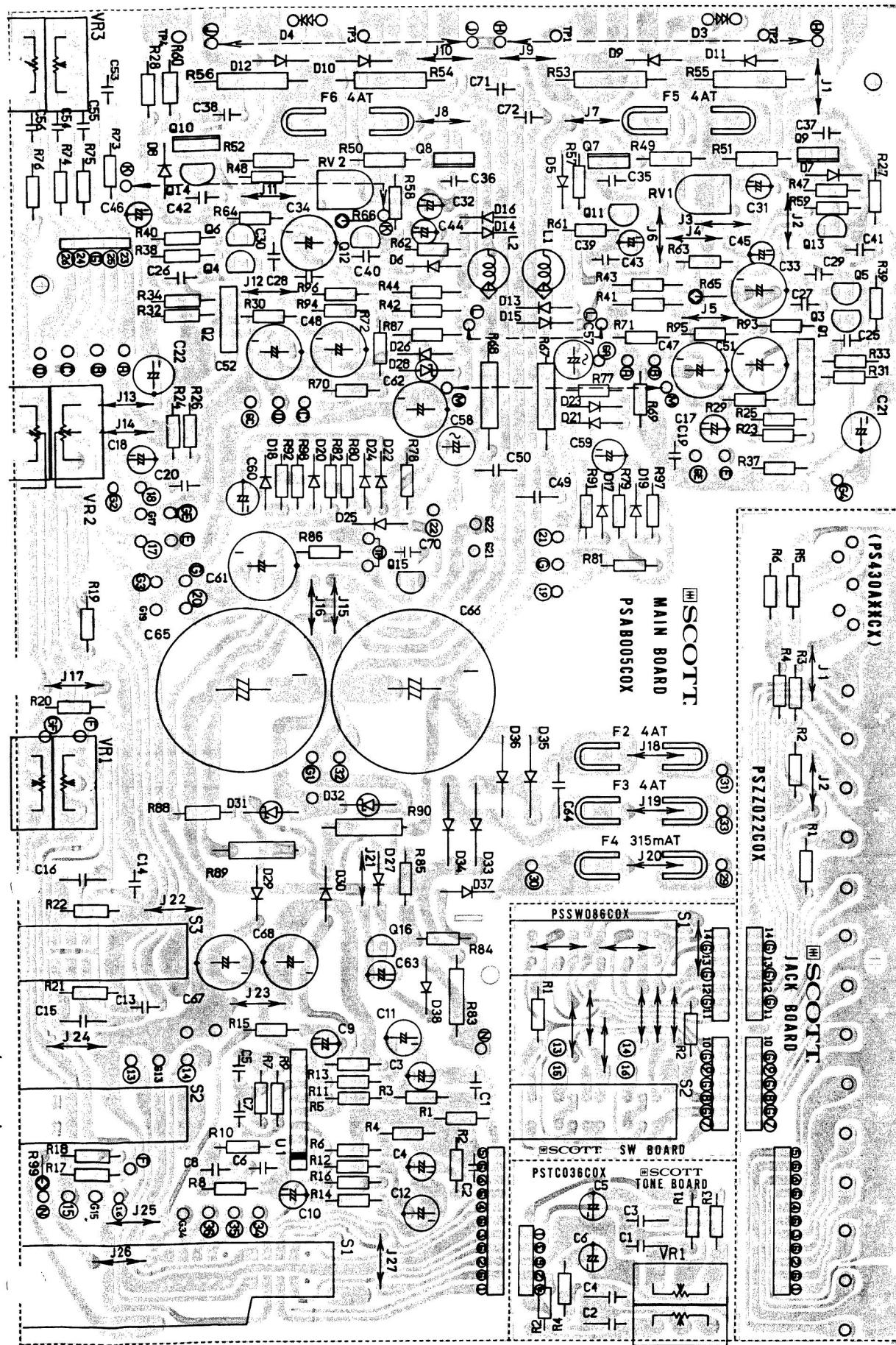
NOTE: CAPACITOR'S VALUES ARE IN μ F UNLESS OTHERWISE NOTED, P=PICO FARAD.
RESISTORS VALUES ARE IN OHM, K=K OHM.

SCHEMATIC DIAGRAM: 410A



NOTE: CAPACITOR'S VALUES ARE IN μF UNLESS OTHERWISE NOTED. R = K OHM.
RESISTOR'S VALUES ARE IN OHM.

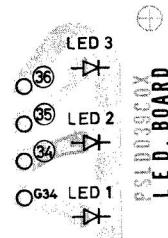
PARTS LOCATION DIAGRAM: 430A/410A



PSAB005COX, Main P.C. Board

PSTC036COX, Tone

PSSW086COX, Switch
PSZZ022COX, Jacks

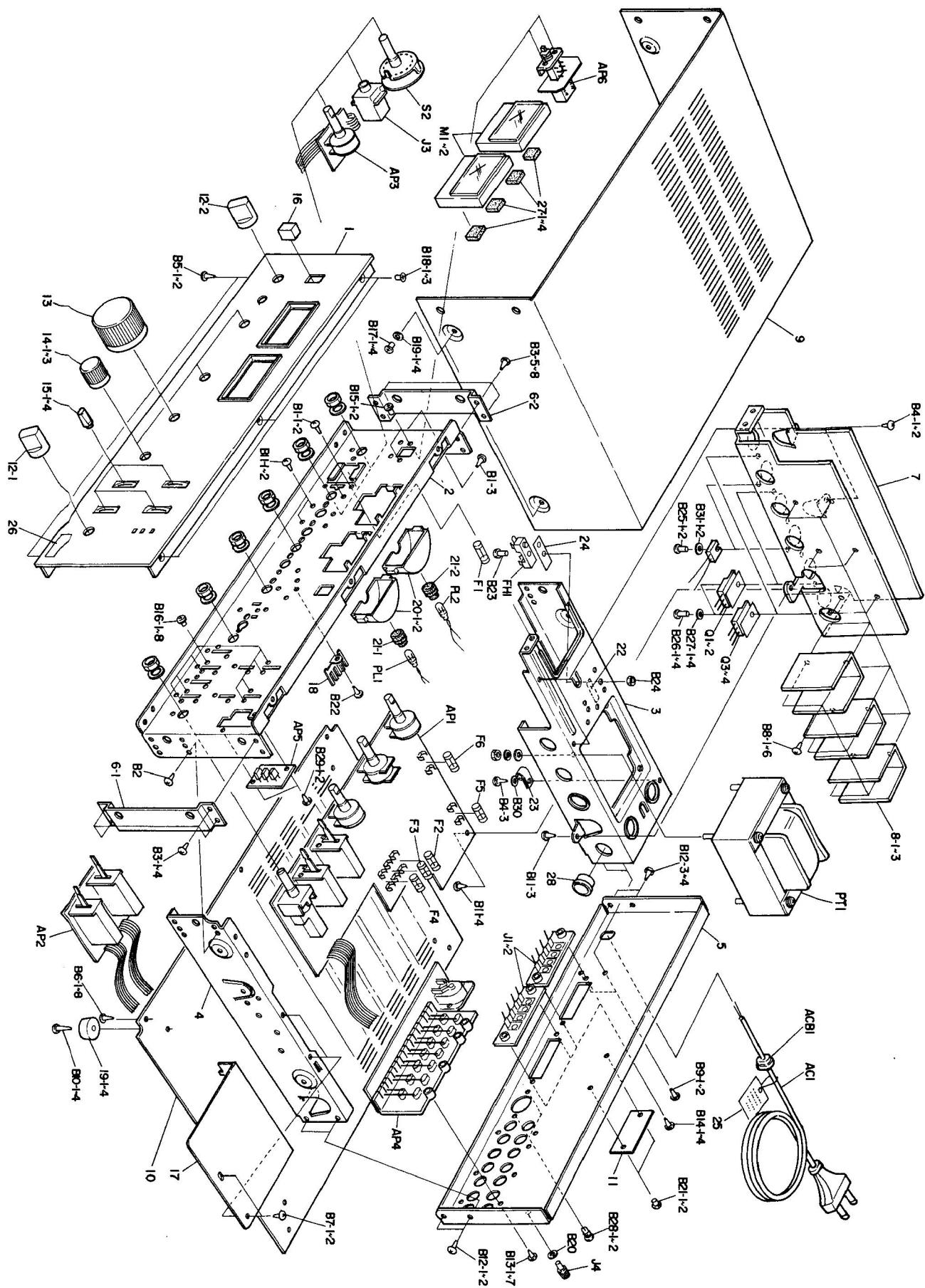


PSLD039COX, LED (430A Only)

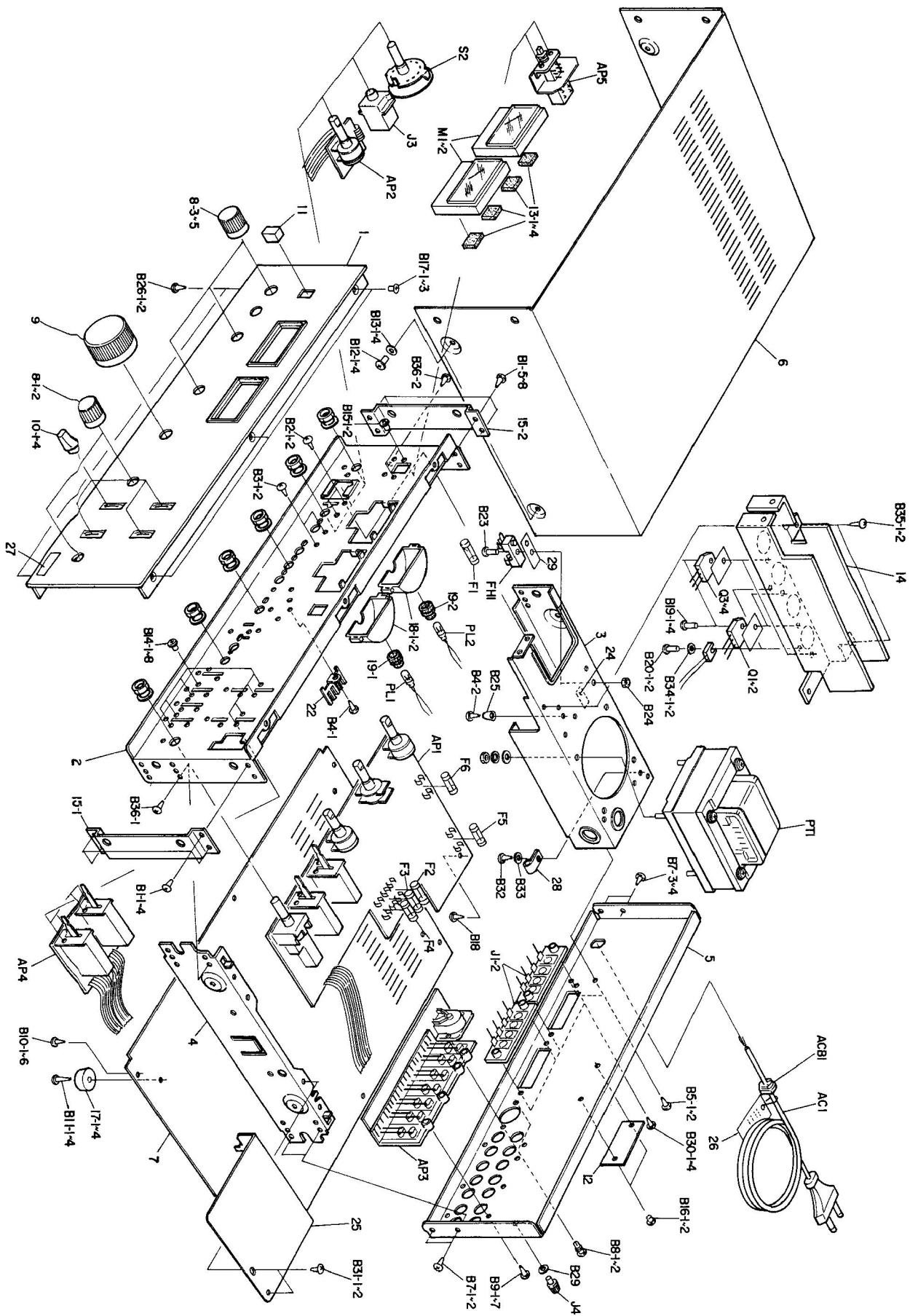
PSSW088COX, Switch

PSLD039COX, LED (430A Only)

EXPLODED VIEW: 430A



EXPLODED VIEW : 410A



REPLACEMENT PARTS LIST: 430A

EXPLDED ASSEMBLY		PART NAME EL.FG. ELEMENTS	PART CODE AAB3BRAESCL1	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
1		ACAC035FFA		AC CORD ASSY			AC1	1
2		APS1D039AA		P.W. BOARD ASSY.				1
3		APSSWQ89AA		P.W. BOARD ASSY.				1
4		APS430A*F1		P.W. BOARD ASSY.				1
5		CEAG010ALX		ELYT. CAPACITOR	1MF0 50V		C1 C2	2
6		CNST103MAN		OIL PAPER CAP.			C3 C4	2
7		G430A*F802		WIRES KIT				1
8		QTA1062XAN		TRANSISTOR	2SA1062 P.Q-RANK		Q3 Q4	2
9		OTC2486XAN		TRANSISTOR	2SC2486 P.Q-RANK		Q1 Q2	2
10		RG2ANJ271B		M-OXIDE FILM R.	2W 270 OHM 5%		R1 R2	2
11		SRD204107T		ROTARY SWITCH			S2	1
12		TPB83S001Y		PWR. TRANSFORMER			PT1	1
13		VM270NB004		BUSHING			ACB1	1
14		VX432VL002		C-COVER			ZZ1 ZZ2	2
15		YHF1P2001Z		FUSE HOLDER			FH1	1
16		YJS03S016Z		PHONE JACK			J3	1
17		YTDO1S002U		TERMINAL			J4	1
18		YTS04S007U		TERMINAL			J1 J2	2
19		ZFBQ16201A		FUSE			F1	1
20		ZFBQ32101A		FUSE			F4	1
21		ZFRQ40203A		FUSE			F2 F3 F5 F6	4
22		ZMD2050K01		METER 78ATOR			M1 M2	2
23		ZPA14B103U		LAMP			LP1 LP2	2

EXPLDED ASSEMBLY		PART NAME MECH. ELEMENTS	PART CODE AAB3RAFSC1?	STOCK NO.				
L	M	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
1			AM4304**01		SCUTCHON ASSY		1	1
2			BNHCL30NBN		NUT	M3, BS-NI, THIN-TYPE	B24	1
3			BRP30550NB		PAN HEAD RIVET		B28-1 B28-2	2
4			BRU2455XAJ		THIN HD RIVET	2.4 X 5.5 ALMINUM	B21-1 B21-2	2
5			BSPB3000NN		BIND HEAD SCREW	(+)BIT, M3 X 8 S-NI	B25-1 B25-2	2
6			RSPB5010NB		BIND HEAD SCREW	(+)BIT, M5 X 10 S-BLACK	B17-1 B17-2 B17-3 B17-4	4
7			BSPC3000NZ		CEMS SCREW	(+)BIT, M3 X 6 S-ZNCR	B15-1 B15-2 B16-1 B16-2	10
8							B16-3 B16-4 B16-5 B16-6	
9							B16-7 B16-8	
10			BSPC3010N7		CEMS SCREW	(+)BIT, M3 X 10 S-ZNCR	B26-1 B26-2 B26-3 B26-4	4
11			SSPP3010NP		PAN HEAD SCREW	(+)BIT, M3 X 10 PLASTIC	B23	1
12			ATPL300RBB		NAIL TAP SCREW	(+)BIT, M3 X 8 S-BLACK	B12-1 B12-2 B12-3 B12-4	4
13			ATPP300RAB		PAN TAP SCREW	(+)BIT, M3 X 8 S-BLACK	B13-1 B13-2 B13-3 B13-4	11
14							B13-5 B13-6 B13-7 B14-1	
15							B14-2 B14-3 B14-4	
16			RTPS300BTZ		FLAT TAP SCREW	(+)BIT, M3 X 8 S-ZNCR (TAP TITE)	B18-1 B18-2 B18-3	3
17			RTPW300RRB		BRAS. TAP SCREW	(+)BIT, M3 X 8 S-BLACK	B9-1 B9-2	2
18			RTPW300RRJ		BRAS. TAP SCREW		B22	1
19			RTPW300RRZ		BRAS. TAP SCREW	(+)BIT, M3 X 8 S-ZNCR	B1-1~3 B4-1~3 B5-1~2 R2	29
20							B29-1 B29-2 B3-1~8 B6-1	

EXPLODED ASSEMBLY		PART NAME MFCH. ELEMENTS	PART CODE AAB38AFSCL2	STOCK NO.	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.				Q'TY USED
#	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME									
1									B6-2	B6-3	B6-4	B6-5	
2									B6-6	B6-7	B6-8	B7-1	
3									B7-2				
4		BTPW3010AZ		BRAS. TAP SCREW (+)BIT, M3 X 10 S-ZNCR					B11-1	B11-2	B11-3	B11-4	10
5									B8-1	B8-2	B8-3	B8-4	
6									B8-5	B8-6			
7		BTPW3010BZ		BRAS. TAP SCREW (+)BIT, M3 X 10 S-ZNCR					B10-1	B10-2	B10-3	B10-4	4
8		RWM30A08SN		FLAT L. WASHER	FLAT LARGE, 3 M/M S-NI				B20	B30			2
9		RWM30705SN		FLAT L. WASHER	FLAT LARGE, 3 M/M S-NI				B27-1	B27-2	B27-3	B27-4	6
10									B31-1	B31-2			
11		BWM50C08SR		FLAT L. WASHER	FLAT LARGE, 5 M/M S-BLACK				B19-1	B19-2	B19-3	B19-4	4
12		MB972SE067		REAR PANEL					5				1
13		MR972SL007		FRONT PANFL					2				1
14		MC371S2002		BRACKFT					6-1	6-2			2
15		MC865SL002		CHASSIS					3				1
16		ML331SS001		TERMINAL					18				1
17		ML765SL002		SHIFID					17				1
18		MN276XA020		KNOB					14-1	14-2	14-3		3
19		MN376AA019		KNOB RS					12-1	12-2			2
20		MN3B6XA024		KNOB					13				1
21		MS986SL004		BOTTOM PLATE					10				1
22		MU653AX001		HEAT SINK					8-1	8-2	8-3		3
23		MU852SI003		SIDE BRACKET R					4				1

EXPLODED ASSEMBLY		PART NAME MFCH. ELEMENTS	PART CODE AAB38AFSCL2	STOCK NO.	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.				Q'TY USED
#	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME									
1		MU875A0001		HEAT SINK					7				1
2		MU897SX021		COVER					9				1
3		MVL635GF01		SER.ND. PLATE					11				1
4		VR532AW001		LAMP HOUSE					20-1	20-2			2
5		VF177FR001		BUSHING					28				1
6		VM165RX003		HOLDER					21-1	21-2			2
7		VM280FR001		FOOT					19-1	19-2	19-3	19-4	4
8		VN2205X001		POW KNOB					16				1
9		VN360SX001		KNOB					15-1	15-2	15-3	15-4	4
10		VS227R0001		SHEET					27-1	27-2	27-3	27-4	4
11		VS325VN001		BARRIER					24				1
12		VS417NN003		CLAMPER.					23				1
13		VVL311GF54		FUSE LABEL					22				1

EXPLODED ASSEMBLY		PART NAME ESCUCHON ASSY	PART CODE AM430A**01	STOCK NO.	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.				Q'TY USED
#	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME									
1		ME97FAA104		ESCUCHON					1A				1
2		VK132SX004		BUSH LEVER					1C-1	1C-2			2
3		VK132SX007		BUSH					1D-1	1D-2			2
4		VK133SX001		BUSH POWER					1E				1
5		VK165SX004		METER FRAME					1B-1	1B-2			2
6													
7													

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY., APSAB005FD		PART CODE	STOCK NO.					
L	N	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED
1			CCFB121KOT		CERAMIC CAP.	120PF	50V -10, +10% SL	C13	C14	2
2			CCFB221KOT		CERAMIC CAP.	220PF	50V -10, +10% SL	C1	C2	2
3			CCGB1000T		CERAMIC CAP.	SL 10PF	50V -0.5, +0.5PF	C25	C26	4
4			CCGB820KOT		CERAMIC CAP.	82PF	50V -10, +10% SL	C19	C20	2
5			CEAB221ALX		FLYT. CAPACITOR	220MFD	6.3V	C51	C52	2
6			CEAD100NLX		FLYT. CAPACITOR			C57	C58	2
7			CEAD221ALX		FLYT. CAPACITOR	220MFD	16V	C67	C68	2
8			CFAE470ALX		FLYT. CAPACITOR	47MFD	25V	C62		1
9			CEAF470ALX		FLYT. CAPACITOR	47MFD	35V	C33	C34	2
10			CFAG101ALX		FLYT. CAPACITOR	100MFD	50V	C61		1
11			CFQ1G8220Z		FLYT. CAPACITOR			C65	C66	2
12			CEVC101ALX		FLYT. CAPACITOR			C47	C48	2
13			CEVC670ALX		FLYT. CAPACITOR			C11	C12	2
14			CEVD100ALX		FLYT. CAPACITOR			C59	C60	2
15			CEVE4R7ALX		FLYT. CAPACITOR			C43	C44	4
16			CEVG010ALX		FLYT. CAPACITOR			C10	C17	8
17								C31	C32	4
18			CEVG100ALX		FLYT. CAPACITOR			C21	C22	2
19			CEVG2R2ALX		FLYT. CAPACITOR			C63		1
20			CKDF103PEM		CERAMIC CAP.	0.01MFD	500V -0, +10% E	C64		1
21			CKFB223ZFT		CERAMIC CAP.	0.022MFD	50V -20, +80% F	C39	C40	4
22			CKFB473ZFT		CERAMIC CAP.	0.047MFD	50V -20, +80% F	C71	C72	2
23			CKGR561KBT		CERAMIC CAP.	560PF	50V -10, +10% B	C70		1

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY., APSAB005ED		PART CODE	STOCK NO.					
L	N	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED
1			CQMB122JEH		MYLAR CAPACITOR	1200PF	50V -5, +5%	C7	C8	2
2			CQMB392JFH		MYLAR CAPACITOR	3900PF	50V -5, +5%	C5	C6	2
3			CQMB473KTH		MYLAR CAPACITOR	0.047MFD	50V -10, +10%	C55	C56	2
4			CQMR562KTH		MYLAR CAPACITOR	5600PF	50V -10, +10%	C53	C54	2
5			CQMR563KTH		MYLAR CAPACITOR	0.056MFD	50V -10, +10%	C15	C16	2
6			CQMC563KEH		MYLAR CAPACITOR			C49	C50	2
7			LA3LE1024A		CHOKE COIL			L1	L2	2
8			MW201BS001		TERMINAL					25
9			MW401CX006		SHOT JAMPER					24
10			PSAB005COX		PRINTED W. BOARD					1
11			PS430A**CX		PRINTED W. BOARD					1
12			QDGIN60XXT		GERMANIUM DIODE	NO-RANK		D21	D22	4
13			QDSGM3ZXXD		SILICON DIODE	GM32 NO-RANK		D33	D34	4
14			QDSN444BXZ		SILICON DIODE	IN4448 VRM=100V NO-RANK		D13	D14	19
15								D17	D18	19
16								D25	D26	27
17								D30	D37	29
18								D6	D7	8
19			QDSRA1ZXXD		SILICON DIODE	RA1Z NO-RANK		D10	D11	9
20			QDZRDI5ECA		ZENER DIODE	RD15F(C) VZ=14.7-16.5 C-RANK		D31	D32	2
21			QDZRDI22ECA		ZENFR DIODE	RD22EC VZ=22-24.5 C-RANK		D28		1
22			QOM06551BN		I.C.			U1		1
23			QTA0720XBN		TRANSISTOR	2SA720 Q.R-RANK		D13	D14	2

EXPLODED ASSEMBLY		PART NAME P.W.80AR0 ASSY. APSAB005FD		PART CODE	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		Q'TY USED
1		QTA0794XAN		TRANSISTOR			R10	R9	2
2		QTA0798XEE		TRANSISTOR	2SA798 F.G-RANK BREAK VOLTAGE=70V	01	R2		2
3		OTC1318XDN		TRANSISTOR	2SC1318 Q.R-RANK	R11	R12		2
4		OTC1567XAN		TRANSISTOR		R7	R8		2
5		OTC1685XAN		TRANSISTOR	2SC1685 Q.R-RANK	R15	R16	R3 R4	4
6		OTC1885XAN		TRANSISTOR	2SC1885 R.S-RANK	R5	R6		2
7		QVESTV3HxD		VARISTOR	STV-3H D.Y-RANK (VF:1.60V-1.74V)	R3	R4		2
8		RD25PJ102X		CARRON FILM R.	0.25W 1K OHM 5%	R15	R16	R25 R26	4
9		RD25PJ104X		CARRON FILM R.	0.25W 100K OHM 5%	R1	R2	R3 R4	5
10							R86		
11		RD25PJ122X		CARRON FILM R.	0.25W 1.2K OHM 5%	R73	R74		2
12		RD25PJ132X		CARRON FILM R.	0.25W 1.3K OHM 5%	R11	R12		2
13		RD25PJ133X		CARRON FILM R.	0.25W 13K OHM 5%	R21	R22		2
14		RD25PJ182X		CARRON FILM R.	0.25W 1.8K OHM 5%	R81	R82		2
15		RD25PJ220X		CARRON FILM R.	0.25W 22 OHM 5%	R88			1
16		RD25PJ222X		CARRON FILM R.	0.25W 2.2K OHM 5%	R17	R18	R84	3
17		RD25PJ223X		CARRON FILM R.	0.25W 22K OHM 5%	R29	R30	R93 R94	6
18							R95 R96		
19		RD25PJ224X		CARRON FILM R.	0.25W 220K OHM 5%	R13	R14		2
20		RD25PJ271X		CARRON FILM R.	0.25W 270 OHM 5%	R69	R70	R75 R76	6
21							R97 R98		
22		RD25PJ272X		CARRON FILM R.	0.25W 2.7K OHM 5%	R79	R80		2
23		RD25PJ332X		CARRON FILM R.	0.25W 3.3K OHM 5%	R61	R62	R63 R64	4

EXPLODED ASSEMBLY		PART NAME P.W.80AR0 ASSY. APSAB005FD		PART CODE	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		Q'TY USED
1		RD25PJ333X		CARRON FILM R.	0.25W 33K OHM 5%	R85			1
2		RD25PJ392X		CARRON FILM R.	0.25W 3.9K OHM 5%	R31	R32	R33 R34	6
3							R71 R72		
4		RD25PJ471X		CARRON FILM R.	0.25W 470 OHM 5%	R91	R92		2
5		RD25PJ561X		CARRON FILM R.	0.25W 560 OHM 5%	R5	R6		2
6		RD25PJ623X		CARRON FILM R.	0.25W 62K OHM 5%	R10	R9		2
7		RD25PJ681X		CARRON FILM R.	0.25W 680 OHM 5%	R19	R20		2
8		RD25PJ683X		CARRON FILM R.	0.25W 68K OHM 5%	R23	R24		2
9		RD25PJ754X		CARRON FILM R.	0.25W 750K OHM 5%	R7	R8		2
10		RD25TJ270X		CARRON FILM R.	0.25W 27 OHM 5%	R47	R48		2
11		RD25TJ331X		CARRON FILM R.	0.25W 330 OHM 5%	R57	R58	R59 R60	4
12		RD25TJ5R6X		CARRON FILM R.	0.25W 5.6 OHM 5%	R27	R28		2
13		RD25TJ681X		CARRON FILM R.	0.25W 680 OHM 5%	R37	R38		2
14		RD25TJ820X		CARRON FILM R.	0.25W 82 OHM 5%	R39	R40		2
15		RD25VJ101X		CARRON FILM R.	0.25W 100 OHM 5%	R65	R66		2
16		RD25VJ391X		CARRON FILM R.	0.25W 390 OHM 5%	R99			1
17		RF02SKR47B		WIRE WOUND R.	2W 0.47 OHM 10%	R53	R54	R55 R56	4
18		RGHANJ1518		M-OXIDE FILM R.	1/2W 150 OHM 5%	R49	R50	R51 R52	4
19		RGHANJ182B		M-OXIDE FILM R.	1/2W 1.8K OHM 5%	R77	R78		2
20		RGHANJ472B		M-OXIDE FILM R.	1/2W 4.7K OHM 5%	R41	R42	R43 R44	4
21		RGHARJ182B		M-OXIDE FILM R.		R87			1
22		RG1ARJ152B		M-OXIDE FILM R.		R89	R90		2
23		RG1ARJ392B		M-OXIDE FILM R.		R83			1

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY.	PART CODE AP.SAR005ED	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME			
1		RPJNR33102		SEMI-FIXED VR.		RV1 RV2	2
2		RVQA254R05		VR.		VR2	1
3		RVQA254X04		VR.		VR1	1
4		RVQ4503N02		VR.		VR3	1
5		RX1ARJ5R6B		M-OXIDE FILM R.		R67 R68	2
6		SH040305ZB		SLIDE, ROTARY SW		S1	1
7		SL020226ZN		LEVER SWITCH		S2 S3	2
8		WSG916JJJJ		SHIELDED WIRE		N06	1
9		WTG014EFLXX		SOLID WIRE		N010	1
10		WTG510EFLXX		SOLID WIRE		N011	1
11		WTG608EFLXX		SOLID WIRE		N012	1
12		WTG710EFLXX		SOLID WIRE		N013	1
13		WTG815EFLXX		SOLID WIRE		N014	1
14		WTH013EFLXX		SOLID WIRE		N016 N017	2
15		WTH024EFLXX		SOLID WIRE		N018	1
16		WTJ018EMXX		SOLID WIRE		N015	1
17		WTM909EFLXX		SOLID WIRE		N09	1
18		WTM910EFLXX		SOLID WIRE		N08	1
19		WWF217JXJJ		SHIELDED WIRE		N01	1
20		WWF413JXJJ		SHIELDED WIRE		N02	1
21		WWF518JXJJ		SHIELDED WIRE		N03	1
22		WWF619JXJJ		SHIELDED WIRE		N04	1
23		YHEOP0001Z		FUSE HOLDER		FH2-1 FH2-2 FH3-1 FH3-2	10

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY.	PART CODE AP.SL039AA	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME			
1		PSLD039COX		PRINTED W. BOARD			1
2		QLBLV217RN		L.E.D.	LN217RP RED	LED1 LED2 LED3	3
3		WTG017BKXX		SOLID WIRE		N01	1
4		WTG117BKXX		SOLID WIRE		N02	1
5		WTG217BKXX		SOLID WIRE		N03	1
6		WTG317BKXX		SOLID WIRE		N04	1
7							
8							
9							
10							

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY.	PART CODE AP.SSW086RA	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME			
1		MW401CX006		SHOT JAMPER			6
2		PSSW086COX		PRINTED W. BOARD			1
3		RD25PJ222X		CARBON FILM R.	0.25W 2.2K OHM 5%	R1 R2	2
4		SL040307ZN		LEVER SWITCH		S1 S2'	2
5							
6							
7							
8							
9							
10							

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY. APSSW089AA	PART CODE	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART. STOCK NUMBER	PART NAME			
1		MS545SS002		SHIELD		SL1	1
2		PSSW089ACX		PRINTED W. BOARD			1
3		SP01AAS09A		PUSH SWITCH		SL1	1

EXPLODED ASSEMBLY		PART NAME PRINTED MATTERS AAB3PAESCL3	PART CODE	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART. STOCK NUMBER	PART NAME			
1		KT430A*FCX		OWNER'S MANUAL			1
2		KW0001123BX		WARRANTY CARD			1

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY. APSTC036AD	PART CODE	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART. STOCK NUMBER	PART NAME			
1		CFVND100ALX		FLYT. CAPACITOR		C5 C6	2
2		COMB184KEH		MYLAR CAPACITOR	0.18MFD 50V -10, +10%	C3 C4	2
3		QOMA273KTH		MYLAR CAPACITOR	0.027MFD 50V -10, +10%	C1 C2	2
4		PSTC036FCX		PRINTED W. BOARD			1
5		RD25PJ123X		CARRON FILM R.	0.25W 12K OHM 5%	R1 R2	2
6		RD25PJ162X		CARRON FILM R.	0.25W 1.6K OHM 5%	R3 R4	2
7		RVDA503N02		VR.		VR1	1
8		Z7Z0000122		PC.JOINT		JU4	1
9							
10							

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY. APSZ022RA	PART CODE	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART. STOCK NUMBER	PART NAME			
1		MW401CX006		SHOT JAMPER			2
2		PSAZ022COX		PRINTED W. BOARD			1
3		RD25PJ104X		CARRON FILM R.	0.25W 100K OHM 5%	R5 R6	2
4		RD25PJ222X		CARRON FILM R.	0.25W 2.2K OHM 5%	R1 R2	2
5		RD25PJ394X		CARRON FILM R.	0.25W 390K OHM 5%	R3 R4	2
6		YJD05S011Z		5P DIN JACK		J4	1
7		YJP04S016U		4P-PIN JACK		J1 J2	2
8		YJP06S007U		6P.PIN JACK		J3	1
9							
10							

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY. APS430A*F1	PART CODE	STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	Q'TY USED
ITEM	REMARKS	PART CODE	PART. STOCK NUMBER	PART NAME			
1		APSAB005ED		P.W. BOARD ASSY.			1
2		APSSW089AA		P.W. BOARD ASSY.			1
3		APSTC036AD		P.W. BOARD ASSY.			1
4		APSZ022RA		P.W. BOARD ASSY.			1
5							
6							
7							
8							
9							
10							

410A

EXPLODED ASSEMBLY		PART NAME ELFC. ELEMENTS	PART CODE AAB37AESCL1	STOCK NO.						
#	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		ACAC035FEA		AC CORD ASSY		AC1				1
2		APSSW0B8AA		P.W. BOARD ASSY.						1
3		APS410A*F1		P.W. BOARD ASSY.						1
4		CEAG010ALX		FLYT. CAPACITOR	1MF6 50V	C1	C2			2
5		CNST103MAN		OIL PAPER CAP.		C3	C4			2
6		G410A*EA01		WIRES KIT						1
7		QTA1102XAD		TRANSISTOR		Q3	Q4			2
8		OTC2577XAD		TRANSISTOR		Q1	Q2			2
9		RG2ANJ271B		M-OXIDE FILM R.	2W 270 OHM 5%	R1	R2			2
10		SR0204L09T		ROTARY SWITCH		S2				1
11		TPRB3S002Y		PWR. TRANSFORMER		PT1				1
12		VM270NR004		BUSHING		ACB1				1
13		VX432VL002		C-COVER		ZZ1	ZZ2			2
14		YHF1P2001Z		FUSE HOLDER		FH1				1
15		YJS03S016Z		PHONE JACK		J3				1
16		YTD01S002U		TERMINAL		J4				1
17		YTS04S007U		TERMINAL		J1	J2			2
18		ZFBQ13201A		FUSE		F1				1
19		ZFBQ32101A		FUSE		F4				1
20		ZFRQ32201A		FUSE		F2	F3	F5	F6	6
21		ZMD2050K01		METER 7BA70R		M1	M2			2
22		ZPA148103U		LAMP		LP1	LP2			1

EXPLODED ASSEMBLY		PART NAME MFCH. ELEMENTS	PART CODE AAB37AESCL2	STOCK NO.						
#	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
1		AM410A**01		ESCUCHHEON ASSY		1				1
2		RNHCL3QNSN		NUT	M3. S-NI. THIN-TYPE	B24				1
3		RRP30550NR		PAN HEAD RIVET		B8-1	B8-2			2
4		RRU2455XAJ		THIN HD RIVET	2.4 X 5.5 ALMINUM	B16-1	B16-2			2
5		RSPB300RNN		BIND HD SCREW	(+1)BIT, M3 X 8 S-NI	B20-1	B20-2			2
6		RSPR3010NN		BIND HD SCREW	(+1)BIT, M3 X 10 S-NI	B19-1	B19-2	B19-3	B19-4	4
7		RSPC3006NZ		CEMS SCREW	(+1)BIT, M3 X 6 S-ZNCR	B14-1	B14-2	B14-3	B14-4	10
8						B14-5	B14-6	B14-7	B14-8	
9						B15-1	B15-2			
10		RSPP3010NP		PAN HEAD SCREW	(+1)BIT, M3 X 10 PLASTIC	B23				1
11		ATPB5010TB		BIND HD SCREW		B12-1	B12-2	B12-3	B12-4	4
12		ATPL300RBR		NAIL TAP SCREW	(+1)BIT, M3 X 8 S-BLACK	B7-1	B7-2	B7-3	B7-4	4
13		ATPP300RAR		PAN TAP SCREW	(+1)BIT, M3 X 8 S-BLACK	B30-1	B30-2	B30-3	B30-4	11
14						B9-1	B9-2	B9-3	B9-4	
15						B9-5	B9-6	B9-7		
16		ATPS300RTZ		FLAT TAP SCREW	(+1)BIT, M3 X 8 S-ZNCR (TAP TITE)	B17-1	B17-2	B17-3		3
17		ATPW3006BZ		BRAS. TAP SCREW	(+1)BIT, M3 X 6 S-ZNCR	B36-1	B36-2			2
18		ATPW300RAZ		BRAS. TAP SCREW	(+1)BIT, M3 X 8 S-ZNCR	B18	B3-1	B3-2		2
19		ATPW3008BR		BRAS. TAP SCREW	(+1)BIT, M3 X 8 S-BLACK	B5-1	B5-2			2
20		ATPW300RBJ		BRAS. TAP SCREW		B4-1	B4-2			2
21		ATPW3008BZ		BRAS. TAP SCREW	(+1)BIT, M3 X 8 S-ZNCR	B1-1~8		B10-1~4		23

EXPLODED ASSEMBLY				PART NAME MFCH. ELEMENTS	PART CODE AAR37AESCL2	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED	
1							B10-5	B10-6	B2-1	B2-2
2							B26-1	B26-2	B31-1	B31-2
3							B32	B35-1	B35-2	
4	RTPW3012BZ			BRAS. TAP SCREW (1+1)BIT, M3 X 12 S-ZNCR			B11-1	B11-2	B11-3	B11-4
5	RWM30AD0RSN			FLAT L. WASHER FLAT LARGE, 3 M/M S-NI			B29	B33		2
6	RWM3070FSN			FLAT L. WASHER FLAT LARGE, 3 M/M S-NI			B34-1	B34-2		2
7	RWM50DC0SA			FLAT L. WASHER FLAT LARGE, 5 M/M S-BLACK			B13-1	B13-2	B13-3	B13-4
8	RWT30602RN			GND. WASHER 3 M/M RS-NI			B25			1
9	M89725E070			REAR PANEL			5			1
10	M89725L007			FRONT PANEL			2			1
11	MC371S2002			BRACKET			15-1	15-2		2
12	ML331SS001			TERMINAL			22			1
13	ML765SL003			SHIELD			25			1
14	MN276XA020			KNOB			8-1	8-2	8-3	8-4
15							8-5			
16	MN386XA024			KNOB			9			1
17	MS976SL001			BOTTOM PLATE			7			1
18	MU752SL001			SIDE. PLATE			4			1
19	MU764AD001			HEAT STNK			14			1
20	MU765SL001			CHASSIS			3			1
21	MU897SX022			COVER			6			1
22	MVL635GE01			SER.NO. PLATE			12			1
23	VR532AH001			LAMP HOUSE			18-1	18-2		2

EXPLODED ASSEMBLY				PART NAME MFCH. ELEMENTS	PART CODE AAR37AESCL2	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED	
1		VM165RX003		HOLDER			19-1	19-2		2
2		VM280ER001		FOOT			17-1	17-2	17-3	17-4
3		VN220SX001		POW KNOB			11			1
4		VN360SX001		KNOB			10-1	10-2	10-3	10-4
5		VS227RR001		SHEET			13-1	13-2	13-3	13-4
6		VS325VN001		BARRIER			29			1
7		VS417NN003		CLAMPER			28			1
8		VVL311GE60		LABEL			24			1

EXPLODED ASSEMBLY				PART NAME ESCHUTCHION ASSY	PART CODE AM410AX**01	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED	
1		ME97FAA105		ESCHUTCHION			1-A			1
2		VK132SX004		BUSH LEVER			1-B-1	1-B-2		2
3		VK132SX007		RUSH			1-F-1	1-E-2		2
4		VK133SX001		BUSH POWER			1-C			1
5		VK165SX004		METER FRAME			1-D-1	1-D-2		2

EXPLODED ASSEMBLY				PART NAME PRINTED MATTERS	PART CODE AAR37AESCL3	STOCK NO.				
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED	
1		KT410AF*CX		OWNER'S MANUAL						1
2		KW000123BX		WARRANTY CARD						1
3										

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY.		PART CODE APSA8005GD	STOCK NO.							
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.			Q'TY USED	
1		CCFR121K0T		CERAMIC CAP.	120PF	50V	-10, +10% SL	C13	C14		2	
2		CCFB221K0T		CERAMIC CAP.	220PF	50V	-10, +10% SL	C1	C2		2	
3		CCGB100D0T		CERAMIC CAP.	SL 10PF	50V	-0.5, +0.5PF	C25	C26	C29	C30	4
4		CCGB820K0T		CERAMIC CAP.	82PF	50V	-10, +10% SL	C19	C20		2	
5		CEAB221ALX		ELYT. CAPACITOR	220MFD 6.3V			C51	C52		2	
6		CEAD100NLX		ELYT. CAPACITOR				C57	C58		2	
7		CEAD221ALX		ELYT. CAPACITOR	220MFD 16V			C67	C68		2	
8		CEAE470ALX		ELYT. CAPACITOR	47MFD 25V			C62			1	
9		CEAF470ALX		ELYT. CAPACITOR	47MFD 35V			C33	C34		2	
10		CEAG101ALX		ELYT. CAPACITOR	100MFD 50V			C61			1	
11		CFQ1U68201		ELYT. CAP				C65	C66		2	
12		CEVC101ALX		ELYT. CAPACITOR				C47	C48		2	
13		CEVC470ALX		ELYT. CAPACITOR				C11	C12		2	
14		CEVD100ALX		ELYT. CAPACITOR				C59	C60		2	
15		CEVE4R7ALX		ELYT. CAPACITOR				C43	C44	C45	C46	4
16		CEVG010ALX		ELYT. CAPACITOR				C10	C17	C18	C3	8
17								C31	C32	C4	C9	
18		CEVG100ALX		ELYT. CAPACITOR				C21	C22			2
19		CEVG2R2ALX		ELYT. CAPACITOR				C63				1
20		CKDE103PEM		CERAMIC CAP.	0.01MFD 500V	-0, +10%	E	C64				1
21		CKFB2237FT		CERAMIC CAP.	0.022MFD 50V	-20, +8%	F	C39	C40	C41	C42	4
22		CKFB4737FT		CERAMIC CAP.	0.047MFD 50V	-20, +8%	F	C71	C72			2
23		CKGB561KAT		CERAMIC CAP.	560PF	50V	-10, +10% R	C70				1

EXPLODED ASSEMBLY		PART NAME P.W. BOARD ASSY.		PART CODE APSA8005GD	STOCK NO.							
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.			Q'TY USED	
1		QMBR122JFH		MYLAR CAPACITOR	1200PF	50V	-5, +5%	C7	C8			2
2		QMBR392JFH		MYLAR CAPACITOR	3900PF	50V	-5, +5%	C5	C6			2
3		QMBR473KTH		MYLAR CAPACITOR	0.047MFD	50V	-10, +10%	C55	C56			2
4		QMBR562KTH		MYLAR CAPACITOR	5600PF	50V	-10, +10%	C53	C54			2
5		QMBR563KTH		MYLAR CAPACITOR	0.056MFD	50V	-10, +10%	C15	C16			2
6		QMC563KEH		MYLAR CAPACITOR				C49	C50			2
7		LA3LF1074A		CHOKE COIL				C11	C12			2
8		MW201BS001		TERMINAL								21
9		MW401CX006		SHOT JAMPER								24
10		PSA8005COX		PRINTED W.BOARD								1
11		PS4304**CX		PRINTED W.BOARD								1
12		QDG1N60XXT		GERMANTUM DIODE	NO-RANK			D21	D22	D23	D24	4
13		QDSGP20GXG		SILICON DIODE				D33	D34	D35	D36	4
14		QDSN4448XZ		SILICON DIODE	IN4448 VRM=100V	NO-RANK		D13	D14	D15	D16	17
15								D17	D18	D19	D20	
16								D25	D26	D29	D30	
17								D37	D5	D6	D7	
18								D8				
19		QDSRA1ZXXD		SILICON DIODE	RA1Z	NO-RANK		D10	D11	D12	D9	4
20		QDZR015FC4		ZENER DIODE	RD15E(1)	VZ=14.7-16.5	C-RANK	D31	D32			2
21		QDZR018ECA		ZENER DIODE	RD18FC	VZ=18-20.3	C-RANK	D28				1
22		QDM06551BN		I.C.				U1				1
23		OTA0720XBN		TRANSISTOR	2SA720	Q	R-RANK	Q13	Q14			2

EXPLODED ASSEMBLY		PART NAME P.W.HN&DN ASSY.	PART CODE AP5AR005GD	STOCK NO.	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.			Q'TY USED
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME								
1		QTA0777XAN		TRANSISTOR	2SA777 R.G-RANK		R10	R9				2
2		QTA079AYEF		TRANSISTOR	2SA798 F.G-RANK BREAK VOLTAGE=70V	D1	D2					2
3		QTC131BXDN		TRANSISTOR	2SC1318 Q.R-RANK		R11	R12				2
4		OTC1505XBN		TRANSISTOR	2SC1509 Q.R-RANK		R7	R8				2
5		OTC1695XAN		TRANSISTOR	2SC1685 Q.R-RANK		R15	R16	R3	R4		4
6		QTC1885XAN		TRANSISTOR	2SC1885 R.S-RANK		R5	R6				2
7		QVESTV3HDX		VARISTOR	STV-3H D.Y-RANK (VF:1.60V-1.74V)	D3	D4					2
8		RD25PJ102X		CARBON FILM R.	0.25W 1K OHM 5%		R15	R16	R25	R26		4
9		RD25PJ104X		CARBON FILM R.	0.25W 100K OHM 5%		R1	R2	R3	R4		5
10									R86			
11		RD25PJ122X		CARBON FILM R.	0.25W 1.2K OHM 5%		R73	R74				2
12		RD25PJ132X		CARBON FILM R.	0.25W 1.3K OHM 5%		R11	R12				2
13		RD25PJ133X		CARBON FILM R.	0.25W 13K OHM 5%		R21	R22				2
14		RD25PJ182X		CARBON FILM R.	0.25W 1.8K OHM 5%		R81	R82				2
15		RD25PJ1R3X		CARBON FILM R.	0.25W 18K OHM 5%		R29	R30				2
16		RD25PJ220X		CARBON FILM R.	0.25W 22 OHM 5%		R88					1
17		RD25PJ222X		CARBON FILM R.	0.25W 2.2K OHM 5%		R17	R18	R84			3
18		RD25PJ223X		CARBON FILM R.	0.25W 22K OHM 5%		R93	R94	R95	R96		4
19		RD25PJ224X		CARBON FILM R.	0.25W 220K OHM 5%		R13	R14				2
20		RD25PJ271X		CARBON FILM R.	0.25W 270 OHM 5%		R69	R70	R75	R76		6
21									R97	R98		
22		RD25PJ272X		CARBON FILM R.	0.25W 2.7K OHM 5%		R79	R80				2
23		RD25PJ332X		CARBON FILM R.	0.25W 3.3K OHM 5%		R61	R62	R63	R64		6

EXPLODED ASSEMBLY		PART NAME P.W.HN&DN ASSY.	PART CODE AP5AR005GD	STOCK NO.	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.			Q'TY USED
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME								
1									R71	R72		
2		RD25PJ333X		CARBON FILM R.	0.25W 33K OHM 5%				R85			1
3		RD25PJ392X		CARBON FILM R.	0.25W 3.9K OHM 5%				R31	R32	R33	R34
4		RD25PJ471X		CARBON FILM R.	0.25W 470 OHM 5%				R91	R92		2
5		RD25PJ561X		CARBON FILM R.	0.25W 560 OHM 5%				R5	R6		2
6		RD25PJ623X		CARBON FILM R.	0.25W 62K OHM 5%				R10	R9		2
7		RD25PJ681X		CARBON FILM R.	0.25W 680 OHM 5%				R19	R20		2
8		RD25PJ683X		CARBON FILM R.	0.25W 68K OHM 5%				R23	R24		2
9		RD25PJ754X		CARBON FILM R.	0.25W 750K OHM 5%				R7	R8		2
10		RD25TJ270X		CARBON FILM R.	0.25W 27 OHM 5%				R47	R48		2
11		RD25TJ331X		CARBON FILM R.	0.25W 330 OHM 5%				R57	R58	R59	R60
12		RD25TJ5P6X		CARBON FILM R.	0.25W 5.6 OHM 5%				R27	R28		2
13		RD25TJ681X		CARBON FILM R.	0.25W 680 OHM 5%				R37	R38		2
14		RD25TJ820X		CARBON FILM R.	0.25W 82 OHM 5%				R39	R40		2
15		RD25VJ101X		CARBON FILM R.	0.25W 100 OHM 5%				R65	R66		2
16		RF02SKR47B		WIRE WOUND R.	2W 0.47 OHM 10%				R53	R54	R55	R56
17		RGHANJ151B		M-OXIDE FILM R.	1/2W 150 OHM 5%				R49	R50	R51	R52
18		RGHANJ182B		M-OXIDE FILM R.	1/2W 1.8K OHM 5%				R77	R78		2
19		RGHANJ472B		M-OXIDE FILM R.	1/2W 4.7K OHM 5%				R41	R42	R43	R44
20		RGHARJ122B		M-OXIDE FILM R.					R87			1
21		RG1ARJ122B		M-OXIDE FILM R.					R89	R90		2
22		RPJNA33102		SEMI-FIXED VR.					RV1	RV2		2
23		RVDA254R05		VR.					VR2			1

PART NAME		PART CODE	STOCK NO.								
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS			SYMBOLIC OR EXPLODED VIEW NO.			QTY USED
1		MW401CX006		SHOT JAMPER							9
2		PSSW0R6COX		PRINTED W. BOARD							1
3		RD25PJ22Z		CARBON FILM R.	0.25W 2.2K OHM 5%	R1	R2				2
4		S1040307ZN		LEVER SWITCH		S1	S2				2

EXPLDED ASSEMBLY		PART NAME P.W.B BOARD ASSY.	PART CODE APSSW093AA	STOCK NO.	SPECIFICATIONS				SYMBOLIC OR EXPLODED VIEW NO.				QTY USED
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME									
1		M55455S002		SHIELD					S1				1
2		PSSW093BOX		PRINTED W. BOARD									1
3		SPO1AAS09A		PUSH SWITCH					S1				1

EXPLDED ASSEMBLY		PART NAME P.W. BOARD ASSY.	PART CODE APSAR005GN	STOCK NO.							
ITEM	REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED		
1		RVQA254X04		VR.			VR1		1		
2		RVQA503N02		VR.			VR3		1		
3		RX1ARJ506A		M-OXIDE FILM R.			R67	R68	2		
4		SH020304ZB		SLIDE, ROTARY SW			S1		1		
5		SL020226ZN		LEVER SWITCH			S2	S3	2		
6		VVL211GF55		LABEL					4		
7		WSG916JJJJ		SHIELDED WIRE			N06		1		
8		WTG014FFXX		SOLID WIRE			N010		1		
9		WTG510FFXX		SOLID WIRE			N011		1		
10		WTG608FFXX		SOLID WIRE			N012		1		
11		WTG710FFXX		SOLID WIRE			N013		1		
12		WTH013FLXX		SOLID WIRE			N016	N017	2		
13		WTH024ELXX		SOLID WIRE			N018		1		
14		WTJ018FMXX		SOLID WIRE			N015		1		
15		WTM909FFXX		SOLID WIRE			N09		1		
16		WTM910FFXX		SOLID WIRE			N08		1		
17		WWF217JXJJ		SHIELDED WIRE			N01		1		
18		WWF413JXJJ		SHIELDED WIRE			N02		1		
19		WWF518JXJJ		SHIELDED WIRE			N03		1		
20		WWF618JXJJ		SHIELDED WIRE			N04		1		
21		VHFOP0001Z		FUSE HOLDER			FH2-1	FH2-2	FH3-1	FH3-2	10
22							FH4-1	FH4-2	FH5-1	FH5-2	
23							FH6-1	FH6-2			

PART NAME P.W. BOARD ASSY.		PART CODE 1PSZ7022BA	STOCK NO.					
REMARKS	PART CODE	PART, STOCK NUMBER	PART NAME	SPECIFICATIONS		SYMBOLIC OR EXPLODED VIEW NO.		QTY USED
1	MW401CX006		SHOT JAMPER					2
2	PSAZ022ZDX		PRINTED W. BOARD					1
3	RD25PJ104X		CARRON FILM R.	0.25W 100K UHM 5%		R5	R6	2
4	RD25PJ222X		CARRON FILM R.	0.25W 2.2K 04M 5%		R1	R2	2
5	RD25PJ394X		CARRON FILM R.	0.25W 390K OHM 5%		R3	R4	2
6	YJ005S011Z		5P DIV JACK			J4		1
7	YJP04S016U		6P-PIN JACK			J1	J2	2
8	YJP06S007U		6P-PIN JACK			J3		1

EXPLDED ASSEMBLY	PART NAME		STOCK NO.	SPECIFICATIONS	SYMBOLIC OR EXPLODED VIEW NO.	QTY USED
	P.W. BOARD ASSY.	APS410A-11				
1	APSAB005GD		P.W. BOARD ASSY.			1
2	APSSW086RA		P.W. BOARD ASSY.			1
3	APSTC036AD		P.W. BOARD ASSY.			1
4	APSZZ022BA		P.W. BOARD ASSY.			1
5						
6						
7						
8						
9						
10						
11						
12						

 **SCOTT.**
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